A new *Trigonostoma* (Neogastropoda: Cancellariidae) from Mozambique

Richard E. Petit
M. G. Harasewych
Department of Systematic Biology
National Museum of Natural History
Smithsonian Institution
Washington, D.C. 20560-0118 USA

ABSTRACT

Trigonostoma mozambicense is described from the outer continental shelf off southern Mozambique. This new species is readily distinguished from its congeners by its combination of small adult size, its thick shell with coarsely fenestrated surface sculpture, a narrow umbilicus lined with spiral cords, as well as the presence of strong but shallow apertural lirae between the suture and shoulder, and along the outer lip. This new species is provisionally assigned to the genus *Trigonostoma* based on characters traditionally used to define the genus, while its affinity to a western African species that has been included in the genus *Scalptia* is also recognized.

Additional key words: Indian Ocean, Gastropoda *Scalptia.*

INTRODUCTION

The Cancellariidae is a family of diverse, highly specialized, suctorial gastropods that inhabit soft-bottom, subtidal to bathyal habitats throughout tropical and temperate seas. The shallow-water Cancellariidae of Mozambique were monographed by Petit (1980). The South African representatives of the family were reviewed by Barnard (1959) and Kensley (1973) and in recent popular works by Richards (1981) and Steyn and Lussi (1998). Several additional species were added to the South African fauna in papers by Petit and Harasewych (1991, 2000a, 2000b). Increased biological sampling along outer continental shelf and upper slope depths continues to bring to light previously unknown biota. Over the past year, the Amorim family has kindly made available specimens of newly discovered gastropods from off Mozambique (e.g. Harasewych and Fraussen, 2001), among them the new species of cancellariid described herein.

SYSTEMATICS

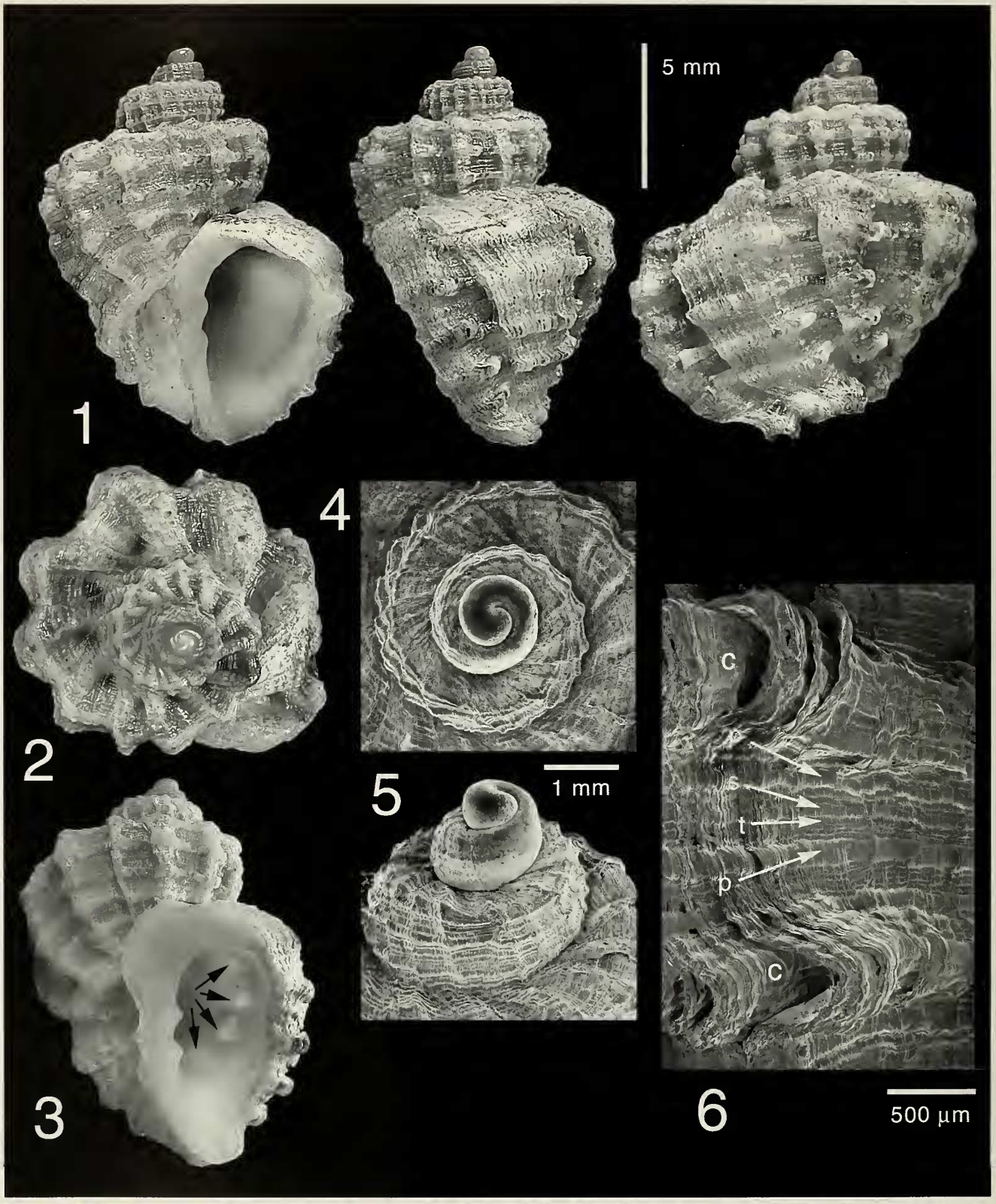
Family Cancellariidae Forbes and Hanley, 1851
Genus *Trigonostoma* Blainville, 1827

Type Species: *Delphinula trigonostoma* Lamarck, 1822 (?= *Buccinum scalare* Gmelin, 1791) by monotypy.

Trigonostoma mozambicense new species
(Figures 1–6)

Diagnosis: A small species with a thick, broadly tabulate, narrowly umbilicate shell with strong, scabrous axial ribs and spiral cords that produce a fenestrated surface sculpture. Umbilicus lined with spiral cords. Outer lip with strong, short lirae between suture and shoulder as well as between shoulder and siphonal canal.

Description: Shell (Figures 1–2) small, reaching 16.1 mm, heavy, ovately biconical, strongly shouldered, with deep, narrow umbilicus. Spire relatively short (spire angle 83°), comprising just over half the shell length. Protoconch (Figures 4–5) increasing in diameter from 0.52 mm to 1.38 mm in 1⅔ smooth, inflated, slightly cylindrical whorls. Transition to teleoconch sharply demarcated by onset of spiral cords and numerous, fine, axial, growth lamellae, followed within ¼ whorl by axial ribs. Teleoconch with up to 3¼ sharply angled whorls. Suture weakly impressed on first two teleoconch whorls, abutting to weakly adpressed on last whorl. Axial sculpture of sharp, prosocline ribs (14–17 on penultimate whorl) that become less numerous (8–12), and progressively broader, more widely spaced and more scabrous on last whorl, producing distinctive, fenestrated surface sculpture. Spiral sculpture consists of strong cords (Figure 6, C) and primary (Figure 6, p), secondary (Figure 6, s) and tertiary (Figure 6, t) threads that overlay both cords and intervening spaces. Spiral cords are absent on tabulate shoulder, 3 cords present from periphery to suture, 6 cords on last whorl, cords strongest on periphery and siphonal fasciole. Aperture sharply triangular, offset from shell axis by 18°. Siphonal canal short, well defined, slightly deflected dorsally. Outer lip thick, weakly flared, crenulated beneath spiral cords, with 3 strong, shallow teeth along the tabulate region of the whorl (evident only in holotype) and 9 strong teeth along outer lip, beneath last axial rib (varix). Varices and spiral cords demarcate uniquely translucent regions within outer lip (Figure 3, arrows). Short parietal region forms an angle of 130° with long, straight columella that bears 2 strong



Figures 1–6. *Trigonostoma mozambicense* new species. Collected by fishing boats south of Bazaruto and north of Maputo, Mozambique, in 100–150 m. **1.** Apertural, right lateral, and dorsal views of holotype, USNM 1007053. **2.** Apical view of holotype. **3.** Aperture of holotype, oblique view showing translucent areas (arrows). **4.** Apical and **5.** Oblique view of protoconch of holotype. **6.** Detail of spiral sculpture. Abbreviations: c, cords; p, primary threads; s, secondary threads; t, tertiary threads. Scale bar (3 mm) applies to all whole shells.

columellar folds near mid-length and a nearly indiscernible siphonal fold. A short parietal callus spans the inductural region. Umbilicus, deep, narrow, spiral cords within, well defined by thick, prominent siphonal fasciole. Shell base color light brown, maculated with dark brown patches between axial cords, especially on tabled shoulder near suture and/or periphery. Protoconch and early whorls pinkish brown. Radula and anatomy unknown.

Type locality: South of Bazaruto and north of Maputo, Mozambique, in 100–150 m.

Material examined: Holotype (National Museum of Natural History, Smithsonian Institution, USNM 1007053); paratype 1 (Natal Museum, Pietermaritzburg, L5749/T1917), Paratypes 2–3, Amorim collection. All collected by fishing boats based in Maputo, Mozambique, March 2001, from the type locality; paratype 4, Brink Collection, off Quissico/Zavora, Mozambique, in fish trap at 120–150 m, December 2001, collected by José Rosado; Paratype 5, Petit Collection #2724, off Quissico/Zavora, Mozambique, in fish trap at 120–150 m.

Remarks: This new species most closely resembles the west African *Scalptia scala* (Gmelin, 1791) [often listed under its junior synonym *Scalptia withrowi* (Petit, 1976)], as well as the Panamic species *Trigonostoma goniostoma* (Sowerby, 1832) and *Trigonostoma breve* (Sowerby, 1832) in general shell morphology, and in sharing several unusual shell characters, among them: a tabulate shell that is pigmented near the suture, the presence of denticles under the sutural ramp, a strongly defined siphonal fasciole, and the presence of strong cords within the umbilicus. *Trigonostoma mozambicense* may be readily distinguished from *S. scala* on the basis of its smaller shell, its broader, more scabrous axial sculpture, in having fewer, stronger and shallower apertural lirae, and in having two columellar folds rather than three folds of *S. scala*. *Scalptia scala* has fine pustules or denticles along the columella, which are lacking in *T. mozambicense*. Like *Trigonostoma goniostoma* and *T. breve*, *T. mozambicense* has two columellar folds. However, it can readily be distinguished from both Panamic species by its smaller shell size, its more rounded whorls, its rounded periphery, and by having broader, more scabrous axial ribs.

While this new species is readily distinguished from other cancellariids on the basis of its shell morphology, there is some question as to its correct generic placement. The species with which it is compared appear to comprise a coherent group. Additional material and further study will be required to confirm the monophyly of this group, to define more precisely the limits and relationships of the genera *Trigonostoma* and *Scalptia*, and to determine the relationship of this group to these genera. Over a century ago Cossmann (1899: 16) discussed the differences between *Scalptia* and *Trigonostoma* and assigned these genera to different subfamilies.

We provisionally include this new species in *Trigonostoma* as it shares a number of features that have been used to diagnose *Trigonostoma* (e.g., two columellar folds, a straight columella, an umbilicus).

ACKNOWLEDGMENTS

We are grateful to the Amorim family (Mozambique and Portugal) for bringing this species to our attention, and for providing the much of the type material. Thanks are due to Dawn Brink of South Africa for obtaining and making additional specimens available for study.

LITERATURE CITED

Barnard, K. H. 1959. Contributions to the knowledge of South African marine Mollusca. Part II. Gastropoda: Prosobranchiata: Rhachiglossa. Annals of the South African Museum 45: 1–237.

Gmelin, J. F. 1791. Caroli a Linné Systema Naturae per regna tria naturae. Editio decima tertia. Vol. 1, pt. 6 (Vermes) Lipsiae, pp. 3021–3910.

Harasewych, M. G. and K. Fraussen. 2001. *Coluzea groschi*, a new species of Columbariinae (Gastropoda: Turbinellidae) from Southeastern Africa. Novapex 2: 171–174.

Kilburn, R. and E. Rippey. 1982. Sea Shells of Southern Africa. Macmillan South Africa, Johannesburg, xi + 249 pp.

Petit, R. E. 1976. Notes on Cancellariidae (Mollusca: Gastropoda)—III. Tulane Studies in Geology and Paleontology 12: 33–43, pls. 1–2.

Petit, R. E. 1980. The Mozambique Cancellariidae (Mollusca: Gastropoda). Annals of the Natal Museum 24: 211–216.

Petit, R. E. and M. G. Harasewych. 2000a. Additions to the cancellariid (Mollusca: Neogastropoda) fauna of South Africa. Proceedings of the Biological Society of Washington 113: 145–154.

Petit, R. E. and M. G. Harasewych. 2000b. Three new species of the genus *Merica* (Neogastropoda: Cancellariidae) from South Africa and the Philippines. The Nautilus 114: 142–148.

Richards, D. 1981. South African Shells. A collector's guide. C. Struik, Cape Town, 98 pp., 60 pls.

Sowerby, G. B., I. 1832. Genus *Cancellaria*. In: W. J. Broderip and G. B. Sowerby, Characters of new species of Mollusca and Conchifera, collected by Mr. Cuming. Proceedings of the Zoological Society of London for 1832: 50–55.

Steyn, D. G. and M. Lussi. 1998. Marine Shells of South Africa. Ekogilde, Hartbeespoort, South Africa, 264 pp.